

WHAT IS CLAIMED IS:

1. A projector comprising:

an illumination optical system for emitting a light;

5 an electro-optical device for modulating the light emitted from the illumination optical system in response to image information;

a projection optical system for projecting a modulated light generated by the electro-optical device; and

an optical component having a rock crystal member composed of rock crystal, the optical component being located in an optical path including the illumination optical system and the projection optical system.

202220" 25159001 10069137 022200 15 2. The projector in accordance with claim 1, wherein the rock crystal member is disposed in such a manner that a Z axis of the rock crystal is substantially perpendicular to a center axis of a light passing through the rock crystal member.

25 3. The projector in accordance with claim 2, wherein the light passing through the rock crystal member is linearly polarized light, and

the rock crystal member is disposed in such a manner that the Z axis of the rock crystal is substantially parallel to or substantially perpendicular to an electric vector of the linearly polarized light.

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4. The projector in accordance with claim 1, wherein the rock crystal member is disposed in such a manner that a Z axis of the rock crystal is substantially parallel to a center axis of a light passing through the rock crystal member.

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5. The projector in accordance with claim 1, wherein the optical component comprises:

a rock crystal substrate as the rock crystal member; and  
an optical element provided on the rock crystal substrate,

wherein a Z axis of the rock crystal substrate is set to be substantially parallel to a surface of the substrate.

6. The projector in accordance with claim 5, wherein  
the optical element is a polarizing plate, and

the polarizing plate is provided on the rock crystal substrate in such a manner that a polarization axis of the polarizing plate is substantially parallel to or substantially perpendicular to a Z axis of the rock crystal.

7. The projector in accordance with claim 1, wherein the optical component comprises:

a rock crystal substrate as the rock crystal member; and  
an optical element provided on the rock crystal substrate,

wherein a Z axis of the rock crystal substrate is set to be substantially perpendicular to a surface of the substrate.

8. The projector in accordance with claim 1, wherein  
the electro-optical device has a pair of substrates,  
at least one of the pair of substrates is a rock crystal substrate  
5 as the rock crystal member, and

a Z axis of the rock crystal substrate is set to be substantially  
parallel to or substantially perpendicular to a surface of the substrate.

9. The projector in accordance with claim 1, wherein the rock  
10 crystal member is a lens.

10. The projector in accordance with claim 1, wherein the  
illumination optical system comprises a polarized light generation  
section for emitting a predetermined polarized light,

15 the polarized light generation section comprising:

the optical component for dividing an incident light into two  
different polarized lights; and

a selective retardation plate for adjusting one of the two  
polarized lights output from the optical component to the other,

20 the optical component comprising:

a plurality of the rock crystal members arrayed in a  
predetermined direction; and

a polarization separation film and a reflection film that are  
alternately arranged on interfaces of the plurality of rock crystal  
25 members.

11. The projector in accordance with claim 1, wherein the illumination optical system comprises a polarized light generation section for emitting a predetermined polarized light,

5 the polarized light generation section comprising:

the optical component for dividing an incident light into two different polarized lights; and

a selective retardation plate for adjusting one of the two polarized lights output from the optical component to the other,

10 the optical component comprising:

the rock crystal member; and

a polarization separation film formed on the rock crystal member.

15 12. A projector comprising:

an illumination optical system for emitting a light;

a color light separation optical system that divides the light emitted from the illumination optical system into first through third color lights respectively having three color components;

20 first through third electro-optical devices that modulate the first through the third color lights divided by the color separation optical system in response to image information, so as to generate first through third modulated lights;

a color light composition optical system for combining the first  
25 through the third modulated lights;

a projection optical system for projecting composite light output from the color light composition optical system; and

an optical component having a rock crystal member composed of rock crystal, the optical component being located in an optical path including the illumination optical system and the projection optical system.

13. The projector in accordance with claim 12, wherein the rock crystal member is disposed in such a manner that a Z axis of the rock crystal is substantially perpendicular to a center axis of a light passing through the rock crystal member.

14. The projector in accordance with claim 13, wherein the light passing through the rock crystal member is linearly polarized light, and

the rock crystal member is disposed in such a manner that the Z axis of the rock crystal is substantially parallel to or substantially perpendicular to an electric vector of the linearly polarized light.

15. The projector in accordance with claim 12, wherein the rock crystal member is disposed in such a manner that a Z axis of the rock crystal is substantially parallel to a center axis of a light passing through the rock crystal member.

16. The projector in accordance with claim 12, wherein at least

one of the color light separation optical system and the color light composition optical system comprises the optical component, and

the optical component comprises:

the four columnar rock crystal members divided by a  
5 substantially X-shaped interface; and

a selector film formed on the interface to select light having wavelength in a predetermined range.

17. The projector in accordance with claim 12, wherein at least  
10 one of the color light separation optical system and the color light composition optical system comprises the optical component, and

the optical component comprises:

the rock crystal member; and

a selector film formed on the rock crystal member to select light  
15 having wavelength in a predetermined range.

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